

Wright City Science Curriculum

7th Grade

Grade	7
Unit of Study	Biotic and Abiotic Factors in an Ecosystem
Length of Unit	9 Weeks
Sample Essential Questions	Sample Corresponding Big Ideas
Given an ecosystem, describe the populations within the ecosystem. Predict how those populations would interact with each other and affect the biotic and abiotic factors in that environment.	Student understanding of specific animal identification/behaviors. Analysis of data beyond given data sets. Labeling a diagram/model. All evidence for arguments must be provided. Assessment vocabulary should be limited to predation, competition, and symbiosis.
Construct an explanation that predicts the patterns of interactions among and between the biotic and abiotic factors in a given ecosystem.	How do biotic factors like a parasite limit the other animals in an ecosystem? The picture below shows trees infested with a parasite. Parasites are organisms that feed off another organism so that the parasite can benefit. How would the parasites limit the population growth of the other organisms in the ecosystem if you introduced them into an ecosystem?
Recognize or recall specific vocabulary such as: Ecosystem, abiotic, biotic, organism, predatory, mutually beneficial, qualitative, quantitative	Insecticides are synthetic chemicals that are used to kill off weeds, grass, and other forms of vegetation. What would happen to the snake population if insecticides were introduced into the food chain?
Develop an understanding of how abiotic and biotic factors in an environment affect each other.	What would happen to the grasshopper population if the snake population increased?

Missouri Learning Standards

Priority Standards

6-8.LS2.A.2 Construct an explanation that predicts the patterns of interactions among and between the biotic and abiotic factors in a given ecosystem.

Unit 1 Sequence			
MLS	Topic(s)	Learning Targets	Academic Vocabulary
6-8.LS2.A.2	Ecosystems and Factors	- I can identify the biotic and abiotic factors in an ecosystem. - I can distinguish between an organism, population, community, and ecosystem. - I can describe how biotic and abiotic factors interact within an ecosystem. - I can classify examples as biotic or abiotic and justify my classification. - I can use observations and data to describe characteristics of an ecosystem.	Ecosystem, Organism, Population Community
6-8.LS2.A.2	Populations and Resources	- I can identify populations within an ecosystem. - I can explain how populations depend on available resources. - I can identify factors that limit the growth of a population. - I can analyze data to determine how resource availability affects a population. - I can predict how a change in one population may affect another population.	Biotic Factor, Abiotic Factor, Interaction, Competition
6-8.LS2.A.2	Interactions Among Organisms	- I can identify and describe competition, predation, and symbiosis. - I can explain how competition for limited resources affects populations. - I can explain how predator-prey relationships affect population sizes. - I can describe how organisms in a symbiotic relationship affect one another. - I can use evidence to predict how a change in one organism will affect another organism.	Predation, Predator, Prey, Symbiosis

6-8.LS2.A.2	Abiotic Factors	• I can identify abiotic factors that influence organisms in an ecosystem. • I can explain how changes in temperature, water, sunlight, or soil can affect populations. • I can analyze data to determine how an abiotic factor affects an organism or population. • I can predict how a change in an abiotic factor will affect an ecosystem.	Mutualism, Parasitism, Limiting Factor, Resource, Population Size, Cause and Effect
6-8.LS2.A.2	Analysis and Prediction	• I can identify patterns in data showing interactions among organisms and their environment. • I can use evidence to explain cause-and-effect relationships within an ecosystem. • I can construct an explanation that predicts how changing one factor will affect other parts of an ecosystem. • I can analyze a model, diagram, or data set and make a prediction about an ecosystem. • I can support my prediction with evidence from observations, models, or data.	Pattern, Evidence, Qualitative, Quantitative, Predict

MLS	Learning Activities	
6-8.LS2.A.2	Students examine pictures/videos of different ecosystems and identify organisms, populations, communities, and ecosystems.	Must Do ▾
6-8.LS2.A.2	Students sort cards or images into biotic and abiotic factors and explain why they placed each item in its category.	Must Do ▾
6-8.LS2.A.2	Students observe the schoolyard and record examples of biotic and abiotic factors.	Must Do ▾
6-8.LS2.A.2	Students create a model showing how living and nonliving components interact.	Can Do ▾
6-8.LS2.A.2	Students analyze an ecosystem photograph and label all observable biotic and abiotic factors.	Can Do ▾
6-8.LS2.A.2	Students investigate how variables such as light, temperature, water, or soil affect organisms.	Must Do ▾
6-8.LS2.A.2	Students respond to scenarios such as drought, increased rainfall, temperature changes, or loss of sunlight.	Must Do ▾
6-8.LS2.A.2	Teams manage a simulated animal population while receiving limited amounts of food, water, shelter, and space.	Must Do ▾
6-8.LS2.A.2	Students model how limiting resources cause a population to increase, decrease, or remain stable.	Can Do ▾

Assessments		
MLS	Description or Location	Rubric/Location
6-8.LS2.A.2	Ecosystems and Factors	CFA/Summative
6-8.LS2.A.2	Populations and Resources	CFA/Summative
6-8.LS2.A.2	Interactions Among Organisms	CFA/Summative
6-8.LS2.A.2	Abiotic Factors	CFA/Summative

Additional Resources	
• MAP Practice (Session 1, #16, 18)- Released http://tinyurl.com/kj4uuubn • MAP Scoring Rubric Guide- http://tinyurl.com/23m4hzrn	
• Video: Environment and Ecosystem: Abiotic and Biotic: http://tinyurl.com/3mtdyc7s • Video: Attack Of The Killer Fungi http://tinyurl.com/hh866wwf	
• Lesson: Interactions in ecosystems http://tinyurl.com/5n9yn2pa • Video: Abiotic and Biotic Factors: http://tinyurl.com/3es38zjs	